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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): McCluskie et al.

Serial No.: 09/316,199

Filed: May 21, 1999

For: METHODS AND PRODUCTS FOR INDUCING MUCOSAL  
IMMUNITY

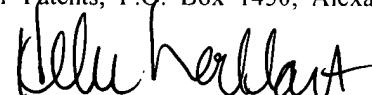
Examiner: D. Nguyen

Art Unit: 1633

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**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)**

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 20 day of November, 2003.



Helen C. Lockhart

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**DECLARATION OF HEATHER L. DAVIS UNDER 37 C.F.R. §1.131**

I, Heather L. Davis, state and declare the following:

1. I am a co-inventor of the above-identified patent application. I make this Declaration in support of an Amendment filed in connection with the above-identified patent application and further in support of the Declaration previously submitted to the patent office on April 29, 2002.
2. The idea that mucosal administration of a CpG oligonucleotide could induce a mucosal immune response to an antigen upon antigen exposure was conceived and reduced to practice in my laboratory prior to April 2, 1998, the effective filing date of U.S. Patent 6,218,371, issued April 17, 2001 to Krieg et al.
3. Corroborative support for the statement in ¶2, is enclosed herewith. Two sets of notebook pages describing intranasal administration of CpG in combination with an antigen to produce mucosal immunity are presented.
4. The first set of notebook pages, dated 11 November 1997, describe a study in which 10 ug HBsAg-Ab complex (obtained from Dr. Yu Mei Wen, Shanghai Medical University, China) was administered in association with 10 ug CpG (labeled as #1826) by intranasal inhalation. Further groups were started using 1 ug HBsAg-Ab complex + 1 ug CpG on 27 November 1997. Control groups received antigen and cholera toxin instead of CpG. All groups were bled at 1, 2, and 4

weeks post immunization and had fecal pellets collected for evaluation of mucosal immune response. Some mice were boosted and some had lung washes done, as indicated in the notebook entries. These studies yielded positive results which were eventually published in *Viral Immunology*, 11 (4), 1998 (copy enclosed).

5. The second set of notebook pages, dated 16 December 1997, describe a study in which 1 µg HBsAg (Genzyme Diagnostics, San Carlos, CA) was administered in association with 1 µg CpG (labeled as oligo #1826) by intranasal inhalation. Control groups received antigen and cholera toxin instead of CpG. These studies yielded positive results which were eventually published in *Journal of Immunology*, 1998, 161: 4463-4466 (copy enclosed, previously cited in IDS filed March 31, 2003).

I, the undersigned, declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this document and any patent which may issue from the above-identified patent application.

Nov. 11, 2003  
Date

Heather L. Davis  
Heather L. Davis, Ph.D.